INTRADURAL SPINAL GRANULOMAS

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INTRASPINAL granulomas are rare, but they do occur, and are most frequently the familiar extradural tuberculous granulomas associated with Pott's disease of the vertebrae. Occasionally there may be no associated vertebral involvement. Non-specific granulomas in the extradural location, though less common, have also been described.23

A granulomatous lesion of the dura mater itself, hypertrophic spinal pachymeningitis, was described in the 1870's by Charcot and his pupil Joffroy. This condition is most common in the cervical region, but may occur elsewhere in the spinal dura mater. It is usually non-specific, but occasionally is said to be of tuberculous or luetic etiology.

Intradural granulomas are very rare and may be intramedullary or extramedullary. They may be of syphilitic origin in the form of a gumma, which now is a rare lesion anywhere in the body, or tuberculomas, which again are quite unusual lesions, or they may be of other etiologies. As a granuloma represents an intense reaction on the part of the tissues to a specific or non-specific infection or irritation, the varieties of granulomas possible are manifold. Among these are: granulomatous tumefactions of pyogenic, other bacterial and mycotic (blastomycotic, coccidoidal, torular, trichophytic) origin, as well as those caused by the irritation of non-infectious agents such as injected iodized oils, dusting powders, surgical cotton and other foreign bodies. All of these varieties, however, have not been found intraspinally. The eosinophilic granuloma, while reported as causing symptoms of the central nervous system,11 is of secondary interest in this discussion in that symptoms produced would probably be those of extradural pressure secondary to the bony involvement.5

DISCUSSION

Tuberculoma of the spinal cord or its leptomeninx is a rare entity. In a series of 6000 postmortem examinations of the central nervous system at the Philadelphia General Hospital,26 only 80 (1.3 per cent) cases of tuberculomas of the central nervous system over 1 cm. in diameter were found. Of these, 78 per cent were in negroes, 22 per cent in white people, 58 per cent in males and 42 per cent in females. There were 40 solitary lesions and 40 showed 2 or more granulomas present per case. In only 6 cases were there tuberculomas of the spinal cord, 3 solitary lesions and 3 associated with granulomas elsewhere in the central nervous system. Tuberculomas were found in the central nervous system in 1 out of every 53 cases that showed

evidence of tuberculosis elsewhere in the body. In 8 cases tuberculoma of the central nervous system was the only tuberculous focus anywhere in the body. The correct diagnosis of tuberculoma was made clinically in only 1 of the 80 cases.

The disease is seen in childhood or early adolescence rather than in later life in the majority of cases. The lesions vary in size from that of a small nodule a few mm. in diameter to that of a hen’s egg, and produce the symptoms of any other space-occupying mass in the same location in the spinal cord. They are usually associated with foci of tuberculosis elsewhere in the body and are probably secondary to these. These tumors may be intramedullary or extramedullary. The latter often arise from an infection of the spinal nerve roots, intervertebral cartilages, the epidural tissues, or the vertebral bodies. Peculiarly, the involvement of the spinal cord produces an inflammatory reaction of the pia arachnoid and dura mater, which may fuse all of these membranes into one thick mass and cause changes in the epidural space as well. These changes are most marked at the level of the tuberculoma and may include the adjacent nerve roots. The meningeal involvement may not spread far beyond the level of the principal lesion. It is very likely caused by the discharge of tuberculous debris into the subarachnoid space. On gross inspection, a round mass with concentric layers is found. It may show a softened, necrotic center with some surrounding edema, but the center may be calcified or, on rare occasion, present the findings of a true abscess.

In unusual instances the lesion may be removed with good results, as was shown by Elsberg’s patient who lived more than 8 years after operation, but usually a spreading tuberculous meningitis is the sequel.

Even when examined grossly and microscopically the differential diagnosis between tuberculoma and gumma may be uncertain. The differentiation from coccidioidal granuloma may also present difficulties.

The gumma occurs as a late development of syphilis, but is rarely seen now. Formerly it was considered the process to be ruled out first and foremost in any case of suspected space-occupying lesion of the central nervous system. It is only a part of a more generalized disease process but may be the only manifestation thereof even to the extent of negative serological tests. Nonne’s (1913) stated, “In general, one can think of the possibility of a gumma whenever the symptoms of an extra- or intramedullary tumor are present.” Today the rare occurrence of a gumma in the spinal cord or its meninges has so altered the situation that gumma warrants only slight consideration in the differential diagnosis of neoplasm of the spinal cord.

In a large percentage of the few cases in which the central nervous system is involved, the gumma starts in the meninges and may encroach upon the substance of the brain and the spinal cord or may remain entirely extraparenchymal. The lesion is usually solitary but may be multiple and varies in size from 1 to 2 mm. to 4 or 5 or more cm.

In the spinal canal the extension of the tumefaction produces a fusiform enlargement of the cord and associated structures with fine adhesions